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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/853, 007	05/08/97	CHI-YA CHENG	J

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IM22/0928

EXAMINER

YILDIRIM, B

ART UNIT	PAPER NUMBER
1764	<i>14</i>

DATE MAILED:

09/28/99

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UNITED STATES DEPARTMENT OF COMMERCE  
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 14

Application Number: 08/853,007

Filing Date: May 8, 1997

Appellant(s): Cheng et al.

**MAILED**

~~SEP 28 1999~~

**GROUP 700**

Brian M. Burn  
For Appellant

**EXAMINER'S ANSWER**

This is in response to appellant's brief on appeal filed on August 30, 1999.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

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A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

No amendment after final has been filed.

(5) *Summary of Invention*

The summary of invention contained in the brief is consistent with that in the disclosure.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with because all claims are directed to the alkylation or transalkylation of the aromatic compounds using the same alkylating agents under the same set of conditions using the same catalyst, thus form a unitary inventive subject matter. "Transalkylation" is generally used to refer to alkylation wherein the alkyl donating compound is of the same type as the receiving compound, e.g. both are aromatics. All claims therefore, should stand or fall together

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**(8)     *ClaimsAppealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9)     *Prior Art of Record***

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

4,992,606

KUSHNERICK ET AL.

2-1991

**(10)    *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

1.     Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kushnerick et al. (USP 4,992,606).

The reference teaches the same process with the same MCM-22 catalyst having the same diffraction pattern, under the same conditions, thus anticipates the claimed invention. The reference discloses that "it may be desirable" or "it is desirable" to include binder, to improve the crush strength, thus the absence of the binder, while not preferred, is also within the reference teachings.

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2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kushnerick et al. (USP 4,992,606).

The reference teaches the same process with the same MCM-22 catalyst having the same diffraction pattern, under the same conditions (see claims). The reference catalyst may optionally contain a binder to increase the crush-strength thereof (col. 9, lines 30-37; col. 10, lines 41-42).

A distinction may be made between the two catalyst compositions in that the reference catalyst may comprise a binder, while the instant claims recite a binder-free catalyst. The invention as a whole however would have been obvious to one having ordinary skill in the art since the artisan equipped with the reference teachings would select either one of two alternatives, i.e. with and without binder in the reference. Furthermore the omission of means (the binder) together with its function (enhancement of crush strength) would not involve an invention. See *Ex parte CRIGER*, 125 USPQ 448 (BdPatApp&Int 1960) or *In re Pedley*, 41 CCPA 868, 101 USPQ 286, 1954 C.D. 163, 686 O.G. 5. 212 F.2d 199.

**(11) *Response to Argument***

Appellant's arguments in the brief have been fully considered but they are not persuasive.

The appellant argues that Kushnerick catalyst is not binder-free, thus the reference does not anticipate the claims. The argument is not persuasive because, Kushnerick teachings taken "as a whole" is believed to include binderless embodiment as well. Because the binder is not a requirement but a "desirable" component to improve crush strength when such crush-strength improvement is called for. Therefore the embodiment with binder constitutes at best the preferred

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embodiment of the reference. The reference teachings however, cannot be considered limited to preferred or exemplified embodiments. See *In re Boe*, 355 F.2d 961, 148 USPQ 507 (CCPA 1966).

The appellant further argues that the artisan would be led away from the claimed invention because Kushnerick suggest the use of binder to improve crush strength and controlling the rate of reaction and cites the relevant passages. The argument is not persuasive for primarily the same reasons as stated in the body of the reaction above and in the previous paragraph. Reference refers to other diluent components in addition to the binder, which with respect to the "orderly reaction". Furthermore, the reference further makes clear the very well known basic fact that the components other than the catalyst itself does not participate in this "acid catalyzed" reaction, i.e. alkylation. It follows that any increase in the "non-catalytic" part, i.e. the binder, diluent etc. will result in a decrease of the catalytic activity, which in this case is acid activity or alpha activity. Thus the 'trade-off' between the reaction rate and crush-strength is not a speculation by the examiner but the only logical conclusion. The case law cited above, i.e. that which addresses the omission of means together with function is believed to be instructive on this issue.

The appellant argues that better and unexpected results are obtained by the exclusion of binder, and particularly cites the higher alpha values of the binder-free catalyst relative to the one with binder, resulting in higher conversion rates and cites examples to support the assertion.

The argument is not persuasive because it is believed that, everything else being the same, one with ordinary skill would expect higher alpha activity from a binder-free catalyst than one that

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comprising a binder, since the binder itself would have much lower alpha activity than the active catalytic component (see Kushnerick, lines 15-40). According to Kushnerick, inactive materials also function as diluents thus controlling the rate of reaction (i.e. slowing it down).

The reference further specifically discloses the primary purpose of the presence of the binder, which is the improvement of the crush strength in harsh alkylation environment. The artisan willing to make the trade-off between higher activity and better crush strength and controlled reaction would omit the binder. This is believed to be the classic case of omitting means together with its function addressed in the case laws recited above.

Note also that, one with ordinary skill is one who is motivated by economics to depart from the prior art to reduce costs consistent with desired product properties (In re Clinton, 188 USPQ 365 (367), CCPA 1976 and In re Thompson, 192 USPQ 275 (277), CCPA 1976).

In summary, the reference teachings as a whole combined with the conventional knowledge, offers choices to the artisan with expected consequences. Increased reaction rate at the expense of controlled reaction and better crush strength is among them, thus the results the applicant cites would not constitute “unexpected results”.

The appellant argues for the first time that the reference does not teach transalkylation. The argument is not persuasive because the refewrence teachings of alkylation is inclusive of what is sometimes referred to as “transalkylation”. It is noted that the reference alkylates the same type of aromatics as the appellant and discloses that alkylating agents are “any organic compound

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having at least one available alkylating group capable of reaction with an alkylatable aromatic compound...". Such group includes other aromatics such as that in claim 7, and the alkylating process does include "transalkylating" whether it is specifically termed as such or not. It is not believed that the appellant would argue that it is the appellant who discovered that polyethylbenzene is "capable of reaction" with benzene.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

B.L.Y.  
September 26, 1999



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